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U. S. Patent Office

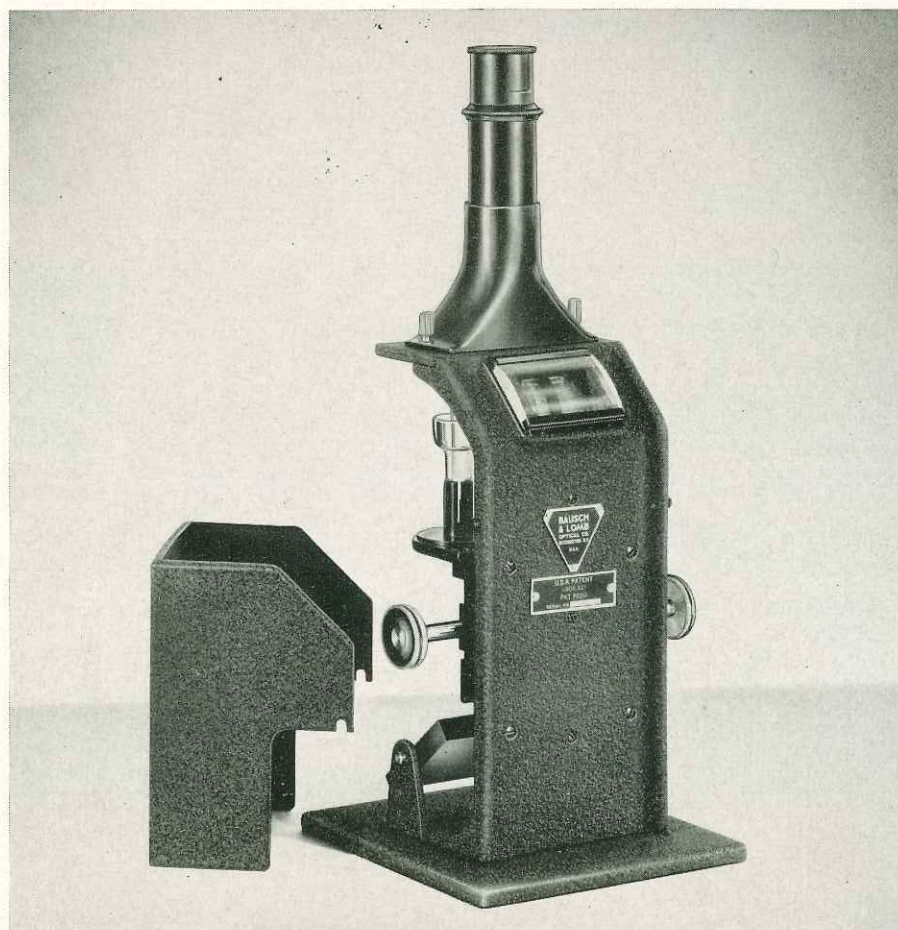
AUG 19 1955

Design Division

CATALOG D-28

BAUSCH & LOMB
COLORIMETERS
AND
ACCESSORIES

BAUSCH & LOMB 40mm BIOLOGICAL COLORIMETER



40mm Biological Colorimeter

THE Duboscq-type Colorimeter, as manufactured by the Bausch & Lomb Optical Company, is an instrument of precision designed to meet the most exacting requirements of the analyst. Into its construction are built such refinements as optically inactive tube bottoms, plungers of optical glass matched for color, adjustments of microscope precision, and a dustproof housing for the prism system.

The B&L Biological Colorimeter with its 40mm depth is especially adapted to meet the needs of the modern bio-chemist. There are two types, one with and the other without direct reading scales. Readings are made with ease on the direct reading type, as the scales are magnified and in a convenient position on the rear of the instrument. Readings on the other type are made from an accurate vernier mounted on the dovetail slide. Both cup carriers on the direct reading models are adjustable with rack and pinion movements. The other models have one carrier adjustable by rack and pinion and the other positioned on its dovetail slide by thumbscrew.

The models are also available with two cup styles—the easily cleaned, separable cup, and the one piece, all glass cup.

Optically, these colorimeters are designed for ease of use during long periods of operation. The adjustable eyepiece has two-lens construction. The compound prism system consists of a double rhomboid reflecting system combined with a bi-prism refracting system. The prisms are permanently mounted within a dustproof housing which can be removed for cleaning without disturbing the optical alignment. The mirror, horizontally mounted, is equipped with both a silvered mirror and an opal glass for diffused light.

Specifications	Catalog Number	
Biological Colorimeter, 40mm, with both cup carriers adjustable, one by rack and pinion; separable cups; solid cylindrical plungers; no case.....	33-21-05-01	
Biological Colorimeter, 40mm; with both cup carriers adjustable, one by rack and pinion; one piece all glass flare top cups and cup holders; solid glass plunger; no case.....	33-21-05-02	
Biological Colorimeter, 40mm, with direct reading scale, separable cups, solid cylindrical plungers, and with both cups adjustable by rack and pinion; no case.....	33-21-07-01	
Biological Colorimeter, 40mm, with direct reading scale, solid glass plungers, one piece all glass flare top cups and cup holders, and with both cups adjustable by rack and pinion; no case.....	33-21-07-02	
<i>Replacement Parts</i>		
40mm Separable Cup, complete (46.5mm deep).....	33-21-20-01	
40mm Glass Cylinder, only.....	33-21-40	
Bottom Glass, 25.8mm diam., optically inactive.....	33-21-90	
Rubber Washer, 28.0mm diam.....	33-21-89	
40mm All Glass Cup, with flare top and fused bottom (47.5mm deep).....	33-21-21†	
40mm Solid Glass Plunger, with threaded adapter.....	33-21-62†	
Cup Holders, for all-glass cups.....	33-21-88	
Mirror, double faced, in mounting.....	33-21-80	
Carrying Case.....	33-21-99	

†When single cups or plungers are ordered, it is necessary to send the cup or plunger with which the new cup or plunger is to be used to the factory for matching.

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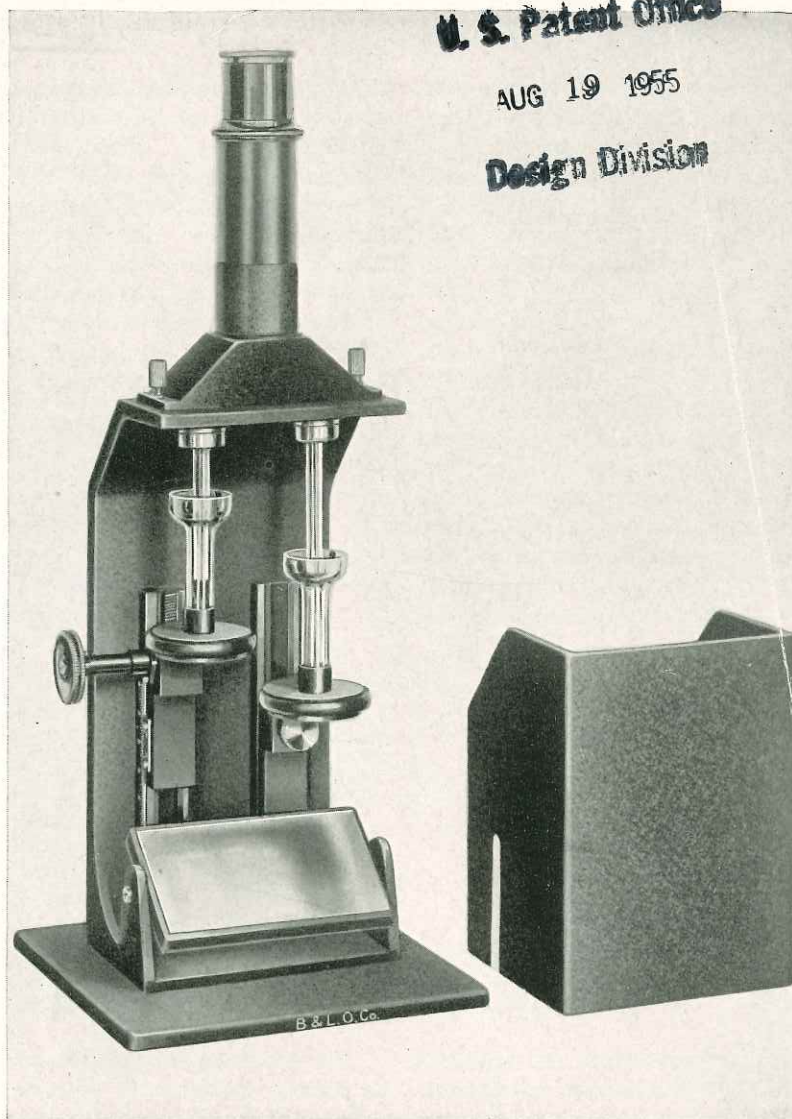
BAUSCH & LOMB 20mm MICRO COLORIMETER

THESE colorimeters with their smaller range are especially designed for use in micro determination. When work is being done with small quantities of solutions or when it is necessary to concentrate colored substances in small amounts of liquids, the B&L Micro Colorimeter is in demand.

The B&L Micro Colorimeter is available in two models, similar to the Biological Colorimeter on the opposite page. The Direct Reading Model reads directly the depth of the liquid in each cup. Readings are viewed conveniently from the rear of the instrument just below the dust-proof prism housing. A magnifier enlarges the vernier scale. The other model has a vernier scale mounted directly on the dovetail slide on which the test sample moves.

Optical specifications have been kept high to provide proper eye comfort. Less fatigue is evidenced by fine optical design. The adjustable eyepiece has two-lens construction. The compound prism system consists of a double rhomboid reflecting system combined with a bi-prism refractor. The construction provides a dividing line which is almost invisible at the match point, yet clearly divides the unmatched fields. The plungers are made of solid cylinders of optical glass, matched for color from the same melt and with optically plane and parallel ends. The flared, all glass cups have optically inactive polished glass discs fused to the cylinders. The mirror provides either direct light or diffused light with equal intensity to both cups.

The Biological Colorimeters may be converted for micro determinations by procuring: All Glass 1 Milliliter Cups with Holders, 20mm Solid Glass Plungers, and Threaded Eyecap Diaphragm.



20mm Micro Colorimeter

Specifications	Catalog Number	
Micro Colorimeter, without direct reading, with both cup carriers adjustable, one by rack and pinion; no case.....	33-21-05-12	
Micro Colorimeter, 20mm, with direct-reading scale, both cup carriers adjustable by rack and pinion; no case.....	33-21-07-12	
<i>Replacement Parts</i>		
20mm All Glass Cup, 1 ml. (1 cc.) capacity, with flare top and fused bottom.....	33-21-39†	
20mm Solid Glass Plunger, with threaded adapter.....	33-21-79†	
Cup Holder for 1 ml. cup for use with 40mm Colorimeter	33-21-87	
Mirror, double faced, in mounting.....	33-21-80	
Cup Holder for 1 ml. cup for use with 50mm Colorimeter	33-21-86	
Threaded Eyecap Diaphragm for use on 40mm and 50mm Duboscq Colorimeters.....	33-21-85	
Carrying Case.....	33-21-99	

†When single cups or plungers are ordered, it is necessary to send the cup or plunger with which the new cup or plunger is to be used to the factory for matching.

OPTICALLY SUPERIOR . . .

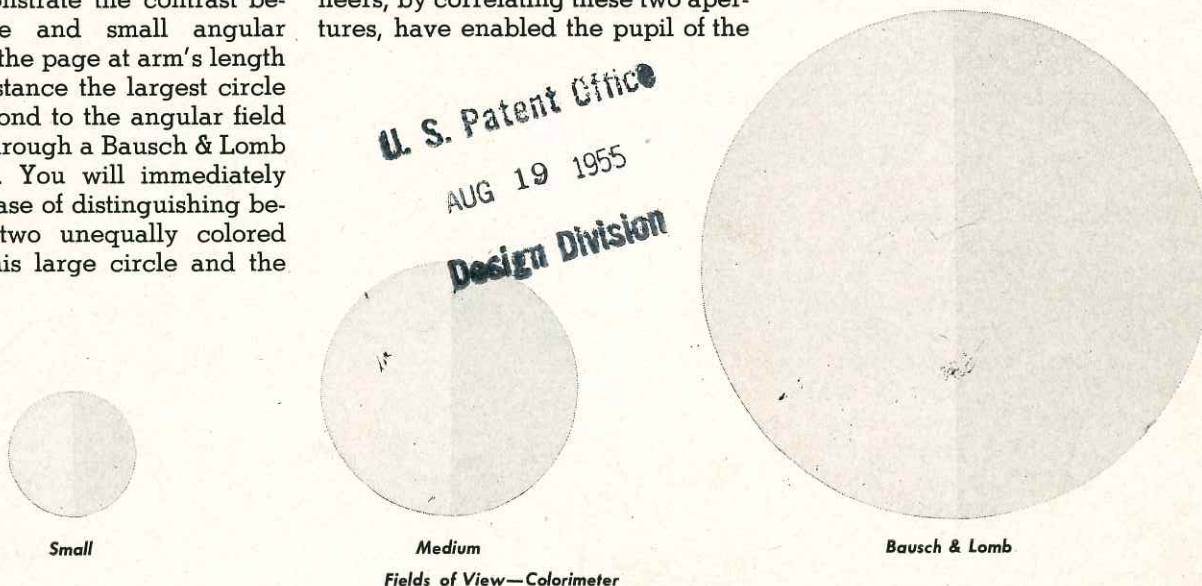
THE wide, eye saving apertures in Bausch & Lomb Colorimeters are made possible by the superior quality and design of the optics. This superior design also permits the transmission of illumination sufficient for a maximum of visual comfort.

Illustrated below are three circles which demonstrate the contrast between large and small angular fields. Hold the page at arm's length at which distance the largest circle will correspond to the angular field as viewed through a Bausch & Lomb Colorimeter. You will immediately notice the ease of distinguishing between the two unequally colored halves in this large circle and the

difficulty in doing so with the smaller circles. This relative difficulty is more pronounced if you view the illustrations through a 2½mm hole in a sheet of paper (2½mm is the diameter of the wide aperture in B&L Colorimeters and also corresponds most closely to the eye pupil aperture). Bausch & Lomb engineers, by correlating these two apertures, have enabled the pupil of the

eye to function with its normal aperture and thus prevent eye fatigue.

Bausch & Lomb Colorimeters enable the analyst to perform his work more accurately and to work for longer periods of time. Maintenance cost is low, production is rapid—these proven instruments add to efficiency and precision of control.



ATTACHABLE COLORIMETER ILLUMINATOR

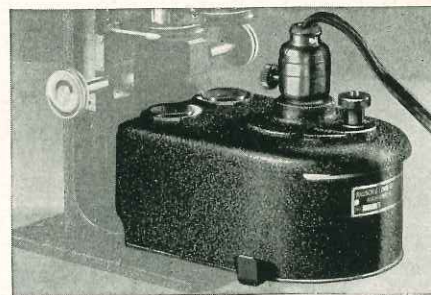
THIS compact illuminator attaches directly to the base of any Bausch & Lomb Colorimeter and provides two degrees of light intensity with a single light source.

The single 15-watt, 115-volt lamp reduces heat to a minimum, and the well ventilated case is constructed to dissipate hot air currents.

The windows are tightly mounted to prevent liquid from entering the interior of the illuminator.

A blue glass daylight filter is included, which assures even, color-matched illumination.

The two degrees of light intensity, one for deeply colored and one for lightly colored liquids, are made



Specifications	Catalog Number	
Attachable Colorimeter Illuminator, and blue glass filter with 15-watt lamp for 115-volt A.C. or D.C., 6-ft. cord, snap switch and attachment plug.....	33-21-57-01*	
Lamp, 15-watt, 115-volt Mazda.....	31-31-20	
Resistance for use on 230-volt A. C. or D. C.....	31-36-76	

*When purchasing a new Colorimeter with Illuminator, the mirror and bracket are not needed. A reduction in price is made when these parts are not required.

possible through a swing-out diaphragm operated by a lever projecting from the base of the housing.

The two intensities possible with this illuminator cover all ranges of colorimetric work.

Prices are subject to change without notice. Orders are subject to acceptance at Rochester, N. Y., U. S. A., at prices prevailing at time of shipment. Orders for standard items may be cancelled if not wanted because of price advance. Excise taxes or other governmental charges will be added wherever applicable. Shipments to points outside Continental United States of America and to its territories, dependencies and possessions, except Hawaii and Alaska, are not subject to excise taxes. Delivery dates are estimated and cannot be guaranteed.

BAUSCH & LOMB OPTICAL CO.
ROCHESTER 2, NEW YORK, U. S. A.